

Prof. Taieb Znati

6401, Sennott Square

Computer Science Department

(412) 624-8417

Office Hours: MW – 10:30 a.m. – 12:30 p.m.

Or by appointment

Course Title	TELCOM 2310 - Computer Networks
Term	Fall 2021
Meetings	Monday: 3:00p.m. - 5:50p.m.
Classroom:	Sennott Square 6110
Course Home Page	http://www.cs.pitt.edu/~znati/tele2310.html

Teaching Assistant

Carlos E Caicedo Bastidas

SIS 838A (SIS 835)

412-624-9490

Office Hours:

Tuesday: 3:30 p.m. – 5:30 p.m.

Thursday: 11:00 a.m. – 1:00 p.m.

I. Course Description

The course discusses the basic principles and topics of fundamental importance which are involved in data networks. The first part of the course provides an overview of the procedures and rules involved in the communication process, and discusses the basic design principles of computer communications. The second part of the course discusses the fundamental issues related to network architectures and protocols. Topics include, routing, flow control, addressing and naming. The third part of the course introduces the concept of Internetworking, a powerful abstraction that allows dealing with the complexity of multiple underlying communication technologies.

II. Course Prerequisites:

Students are expected to have a basic understanding of communication networks fundamentals discussed in courses such as Telcom 2100 or any equivalent

network course. Students are also expected to be able to develop programs in structured or object-oriented languages such as C, C++ or Java.

III. Course Topics

The following topics will be covered:

- **Computer Network Fundamentals**
 - Communication Model
 - Network Edge
 - Network Core
 - Switching Techniques
- **Network Architectures and Models**
 - Protocol Layers
 - End-to-end Argument
 - Internet Structure and Protocol Overview
- **Network Applications and Programming**
 - Socket API
 - Network Basic Services
- **Transport Layer**
 - Transport Layer Design Issues
 - Multiplexing
 - Connectionless and Connection Oriented Paradigms
 - UDP Connectionless Protocol
 - TCP Connection Oriented Protocol
 - TCP connection
 - TCP segment Structure
 - TCP Congestion Control
- **Network Layer**
 - Network Layer Design Issues
 - Virtual Circuits and Datagram Network Services
 - The Internet Protocol (IP)
 - Routing Algorithms
 - Routing and Switching Fundamentals
 - Distance Vector and Link State Protocols
 - Routing in the Internet
 - Interior Routing Protocols (Intra-AS)
 - RIP and OSPF
 - Exterior Routing Protocols (Inter-AS)
 - BGP
 - Multicasting
- **Link Layer and Local Area Networks**
 - Flow Control and Error Control
 - ARQ Techniques
 - Multiple Access Protocols
 - CSMA/CD
 - Ethernet

- Review and Advanced Topics

IV. Homework Assignments and Policies

Regular Assignments will include reading in the course textbook, written homework assignments, and a programming project. Working together with other students in this class is encouraged. Each student, however, must turn in their own original version.

All homework assignments must be well-documented and organized. Homework assignments are not to be turned in on paper torn from a spiral binder. All assignments must be handed in due date at the beginning of the class. Late assignments will be penalized **15%** per day. No assignment can be more than 2 days late. Only exception is documented illness and family emergencies. Emergency cases must be brought to the attention of the instructor prior to the due date.

V. Important Dates

Exam I	October 16th, 2006.
Exam II	November 13th, 2006.
Project Design Report	November 6th, 2006.
Project Due Date and Demo	December 6th, 2006.
Final Exam	December 11th, 2006.

VI. Course Evaluation

Homework	20%
Exam I	15%
Exam II	15%
Project	25%
Final Exam	25%

VII. Textbooks

- ✘ **Behrouz A. Forouzan: *TCP/IP Protocol Suite***, 3rd Edition, Addison-Wesley, 2006.
- ✘ **James F. Kurose, Keith W. Ross: *Computer Networking: A Top-Down Approach Featuring the Internet***, Addison Wesley 3rd Edition;
- ✘ **John D. Spragins et al.: *Telecommunications: Protocols and Design***, Addison-Wesley 1991.
- ✘ **Douglas E. Comer, David L. Stevens: *Internetworking with TCP/IP***, Prentice Hall, 1992
- ✘ **W. Richard Stevens, Gary R. Wright: *TCP/IP Illustrated***, Vol. 1, 2 and 3, Addison-Wesley 1994

VIII. Accommodation for Students with Disabilities

If you have a disability for which you are requesting an accommodation, you are encouraged to contact both your instructor and the Disability Resources and Services (DRS), 216 William Pitt Union, (412) 648-7890 or (412) 383-7355 (TTY). DRS will verify your disability and will determine reasonable accommodation for this course.

A comprehensive description of the services the DRS office can be obtained at www.drs.pitt.edu.

Click here to download the [PDF](#) version of the syllabus.